



Steering Committee Meeting of February 10, 2009

Capital Region Solid Waste Management Plan Steering Committee

The background is a deep blue with a fine grid pattern. A semi-transparent globe of the Earth is centered in the upper half. Overlaid on the globe and background are several large, overlapping, semi-transparent circular shapes in various shades of blue, creating a dynamic, layered effect.

Overview of Existing Conditions

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Existing Waste Generation

	Generation Rate	Generated Tonnage (TPY)
	(lb/person/day)	2008
Residential MSW	3.6	143,704
Commercial MSW	1.8	71,852
C&D Debris	4	159,671
Non-Hazardous Industrial	?	?
Total	9.4	375,227

Future Waste Generation

- 2010 – 380,800 Tons
 - 2020 – 388,600 Tons
 - 2030 – 395,600 Tons
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- Assumes no increase in generation rates
 - May increase when non-haz Industrial Waste is included

Recycling Summary 2007

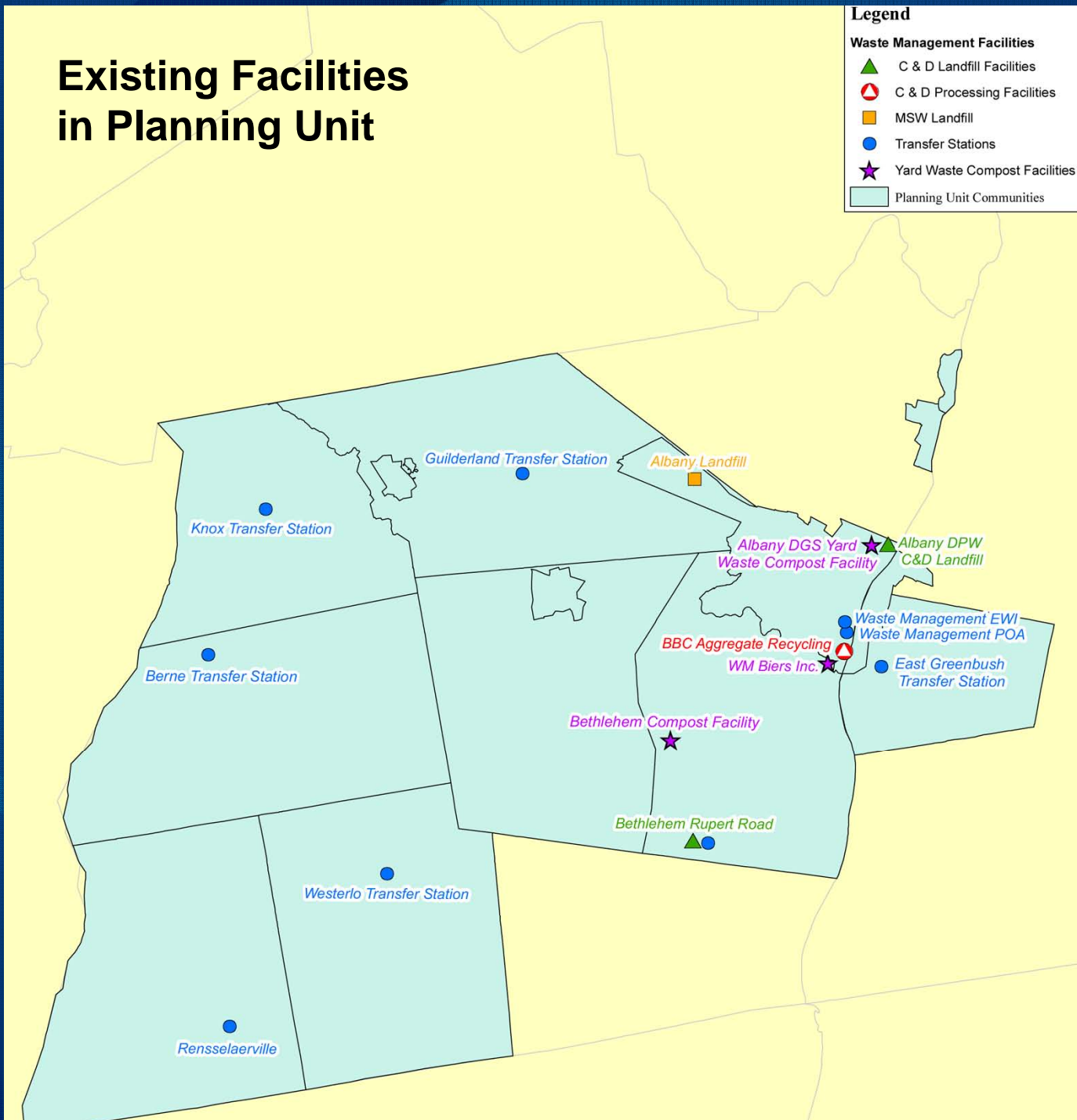
- Total Reported Recycling : **118,466 Tons**
- Disposal from Planning Unit: **238,104 Tons**
- Total Recycling Plus Disposal: **356,570 Tons**
- Overall Diversion Rate : **33.2%**

Existing Facilities in Planning Unit

Legend

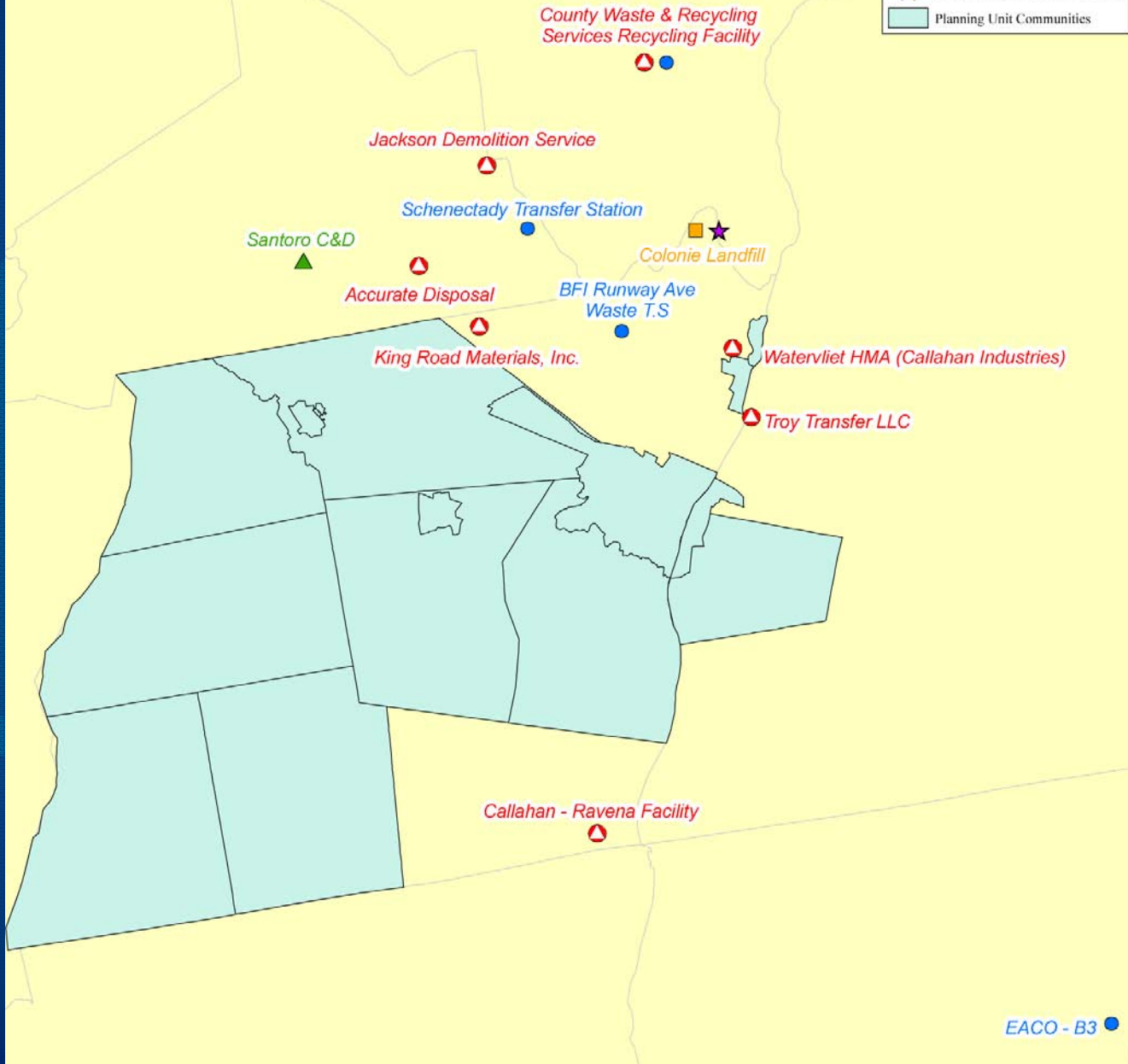
Waste Management Facilities

- ▲ C & D Landfill Facilities
- ◻ C & D Processing Facilities
- MSW Landfill
- Transfer Stations
- ★ Yard Waste Compost Facilities
- Planning Unit Communities



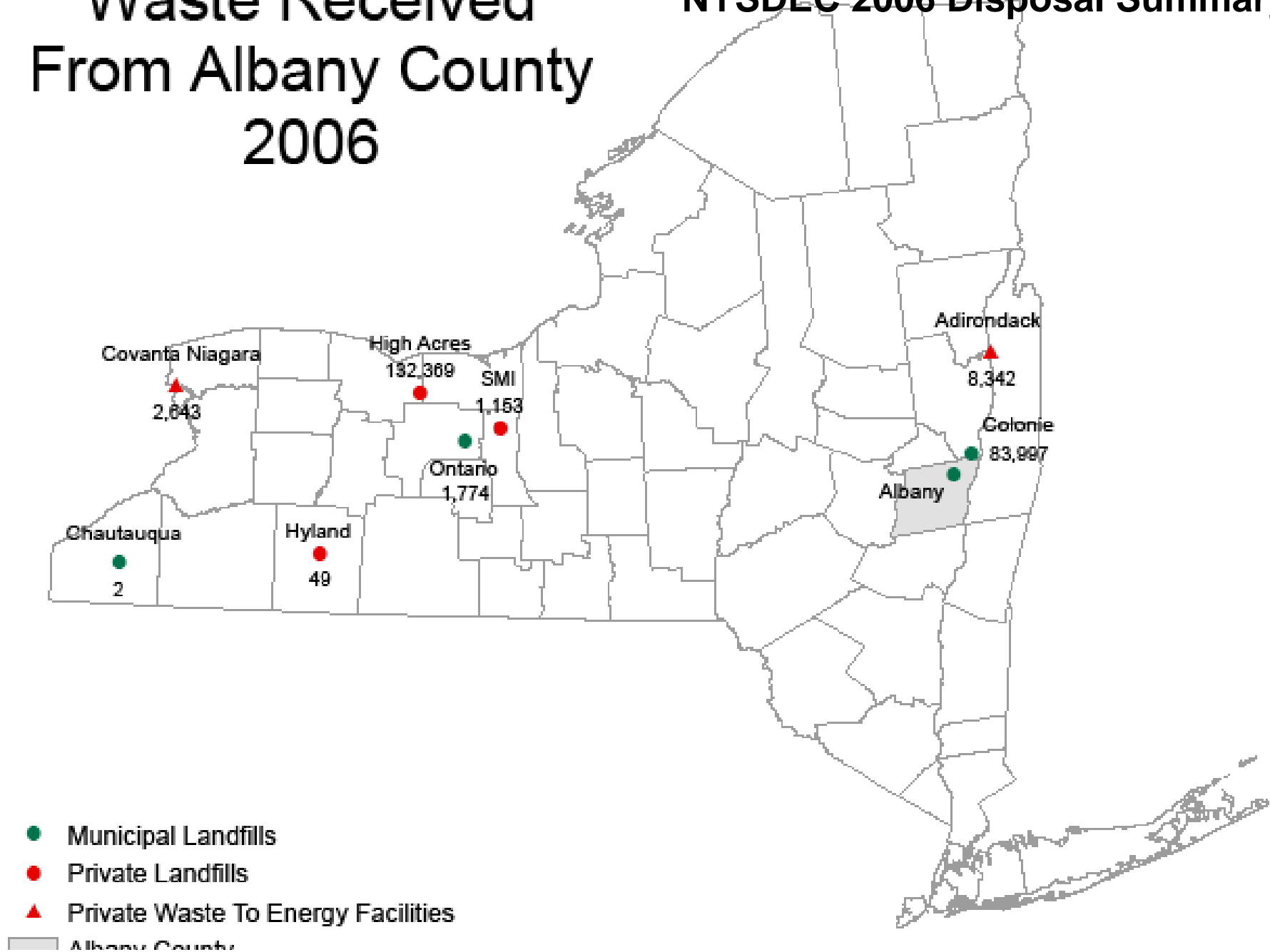
Other Existing Facilities used by the Planning Unit

- Waste Management Facilities**
- ▲ C & D Landfill Facilities
 - ◻ C & D Processing Facilities
 - MSW Landfill
 - Transfer Stations
 - ★ Yard Waste Compost Facilities
 - Planning Unit Communities



Waste Received From Albany County 2006

NYSDEC 2006 Disposal Summary



Proven Alternative Technologies

- Dual Stream Recyclables
- Single Stream Recyclables
- Mixed MSW Composting
- SSOW Composting
- Waste-to-Energy Facilities

Dual Stream Recyclables Collection and MRF



- Residents separate all recyclable paper into one container and all recyclable metal, glass, and plastic (MGP) bottles and cans into another container.
- Trucks used for collection have compartments to prevent the mixing of paper and MGP recyclables.
- Material recovery facilities (MRF) process and sort each stream of recyclables independently.



Advantages



- Established in Albany area
- Participants are accustomed to dual stream separation
- Collection facilities, equipment, and programs are in place

Disadvantages

- Additional sorting required by residents
- Specialized trucks are required, and provide little fleet flexibility
- Collection is less efficient than single stream

Local Dual Stream Recycling Facilities



- Sierra Fibers, Albany, NY
- Metro Waste Paper Recovery, Albany, NY

Single Stream Recyclables Collection and MRF



- Residents place all paper and metal, glass, and plastic (MGP) recyclables into a single container, usually a larger, wheeled container rather than bins.
- Standard rear- or side-loading trucks can be used for collection.
- Material recovery facilities sort recyclable papers from MGP using a single process.



Advantages



- Requires less sorting by participants, thereby encouraging higher participation and diversion rates
- Collection efficiency and fleet flexibility
- May allow recycling of additional materials

Disadvantages

- *Initial capital costs:* Carts for residents, collection vehicles, updated recycling facility, educational programs
- Paper quality may decline as paper is commingled with other materials
- Possible increase in residual rates after processing



Case Study:
**Waste Management
Facility in Syracuse
Suburb of Clay, NY**

- 94,000 square-foot single-stream facility is the largest in NYS
- Can process up to 20 tons of recyclables per hour
- Re-opened in 2006 following a fire at the existing WM facility
- Cost \$11 million to build new facility

Mixed Municipal Solid Waste (MSW) Composting

- Biodegradable components of MSW are processed in a bioreactor drum and allowed to mature in a storage area.
- Some facilities integrate biosolids processing.
- Requires pre- and post- processing to remove inert materials.
- Compost products can be used as agricultural fertilizer.



Advantages

- Beneficial use of compost products
- Limited separation required for generators
- Collection efficiency
- Reduced greenhouse gas emissions and visual impacts (no stacks)



Disadvantages

- Requires pre- and post-processing
- Residual plastics or glass can diminish quality of compost
- Marketability of compost products

Case Study: Delaware County, NY



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- One of 13 MSW composting facilities in U.S. and the only facility in NYS
- Initiated project in 1996; facility began operations in 2006
- Cost \$20 million (\$833 per annual ton) to design and construct
 - Does not include land acquisition
 - County DPW did concrete construction work, non-process wiring, and installed all processing equipment except the bioreactor
 - County highway department did site work including roads, septic and storm water systems, and building pad

- Funding sources:
 - \$2 million recycling grant from NYSDEC
 - \$11.5 million bond from NYS Environmental Facilities Corporation
 - \$7.5 million from county solid waste funds

- Annual operating cost is \$1 million (\$32 per ton); includes staff, electricity, maintenance & repair, compost testing, marketing and professional services

Source Separated Organic Waste (SSOW) Composting



- Organic materials such as food waste are placed in a separate container (usually a “green bin”) for collection.
- Can be integrated with yard waste composting programs.
- Produces compost products that can be used as agricultural fertilizer.

Advantages

- Produces high-quality compost products
- Participation by all generators, or by only major generators such as restaurants, supermarkets, large institutions, etc.
- Can help increase diversion rates

Disadvantages

- May impose additional separation effort and cost demands on generators
- Storage at the source is potentially odorous and requires additional space
- May require additional collection costs

SSOW Composting in New York State

- No municipal programs in NYS
- Cayuga Compost is a small-scale private operation in Tompkins County that collects SSOW from major generators including Ithaca College dining facilities and the Ithaca Farmer's Market
- Compost products are bagged for retail sale, or can be purchased in bulk



Case Study:
Former
Capital Compost
Albany, NY

- Constructed in 1997
- Facility personnel separate organic material such as food waste from MSW on site for composting, and remaining MSW is transported for landfill disposal.
- 50 tpd capacity
- Facility was unable to remain cost-competitive, and was forced to cease operations.

Waste to Energy (WTE) Facility



- MSW is processed at high temperatures in an oxygen-rich environment, essentially incinerating the waste.
- Steam is produced and used to power turbines, which in turn can generate electricity.
- Emission control systems minimize air pollution and reduce greenhouse gas generation.
- Ash byproducts are non-hazardous, and can be used as an alternative daily cover at landfills.

Advantages

- Landfill disposal volume can be reduced by 80-90%
- Electricity is a useful product with a reliable market
- Greenhouse gas emissions are reduced relative to landfill disposal

Disadvantages

- High Capital Cost
- Public support can be limited by concerns regarding emissions, despite the fact that emissions are extremely low.
- Stacks can have negative visual impacts

WTE Facilities in New York State

- 10 active facilities in NYS as of July 2008
- 3.8 million tons of MSW processed to generate 2.2 million megawatt hours of electricity statewide in 2007
- Nearest WTE facilities are:
 - Wheelabrator Resource Recovery Facility, Hudson Falls, NY
 - Dutchess County Resource Recovery Facility, Poughkeepsie, NY
 - Onondaga County Resource Recovery Facility, Syracuse, NY



Case Study:
**Onondaga County
Resource Recovery
Facility, Syracuse, NY**

- Processed 350,000 tons of MSW in 2007 and generated enough electricity to supply 25,000 homes.
- Tipping fee revenues were \$20,280,730, electricity revenues were \$12,535,017, and recovered materials revenues were \$1,527,803.
- Facility operations cost \$26,838,390 (78% of gross revenue). This value includes labor, materials, maintenance and other operating costs, disposal of ash byproducts and bypass materials, as well as debt service on the facility.
- Average cost of \$76.68/ton to cover operating expenses.

Recent Feasibility Study by Oneida Herkimer Solid Waste Authority

- Potentially processible waste stream 233,599 TPY.
- Study assumed plant design capacity at 750 TPD.
- Project Development and Construction Costs estimated at \$164 million
- Total costs per ton for this facility was estimated between \$70 -\$109.
- Would result in an increase in cost of between \$38 to \$61 per ton due to fixed costs for landfill operations and debt service.